Clemson IPM Program Newsletter

August 2021 Issue #4

Integrated pest management is an ecologically-based approach to managing pests with an emphasis on using multiple management strategies. The principles of IPM can be applied to any pest of food or fiber production systems, landscapes, and urban environments. IPM considers multiple control tactics with the aim of minimizing selection pressure on one given tactic.

The Clemson IPM program (https://www.clemson.edu/extension/ipm/index.html) seeks to increase adoption of IPM practices in South Carolina by developing interdisciplinary, research based information, and providing it to the public in efficient and accessible formats. The goals of the IPM program are driven by the needs of stakeholders, who have an integral part in developing the priorities of the current program.

The Clemson IPM Newsletter will provide updates on research, extension programs, successes in IPM, important dates, and more!

@IPM_Clemson

Follow the Clemson IPM program on Twitter for real time updates throughout the growing season

Meet the Team

The IPM program at Clemson is comprised of the coordination team, extension personnel, and researchers throughout the state.

Pee Dee REC
Francis Reay-Jones, *Field Crop Entomology*
JC Chong, *Specialty Crop Entomology*
Joe Roberts, *Turfgrass Pathology*
Ben Powell, *Pollinator Specialist*

Coastal REC
Tony Keinath, *Vegetable Pathology*
Matt Cutulle, *Vegetable Weeds*
Brian Ward, *Organic Vegetable*

Edisto REC
Jeremy Greene, *Field Crop Entomology*
Mike Marshall, *Field Crop Weeds*
Dan Anco, *Peanut Specialist*
John Mueller, *Field Crop Pathology*

Clemson Main Campus
Guido Schnabel, *Fruit Crop Pathology*
Juan Carlos Melgar, *Pomology*
Steve Jeffers, *Ornamental Crop and Tree Pathology*

UGA, Athens
Brett Blaauw, *Peach Entomologist*

Coordination Team
Francis Reay-Jones, *Program Coordinator*
Tim Bryant, *Associate Program Coordinator and Newsletter Editor*

Tell us what you think...

Please take a few minutes to fill out this survey to tell us what you would like to see in future editions of this newsletter!

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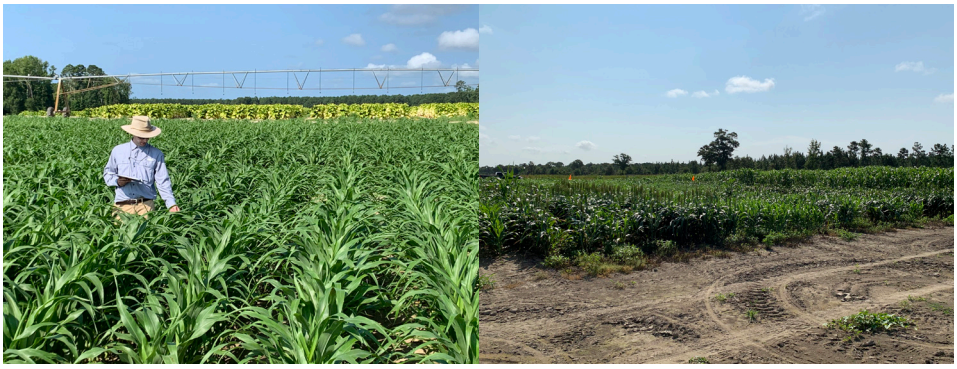
Sugarcane Aphid Management Trials in Grain and Forage Sorghum

Contributing Author: **Dr. Francis Reay-Jones**



Left; Dr. Francis Reay-Jones assessing sugarcane aphid injury. Right; several varieties and planting dates in a sugarcane aphid management

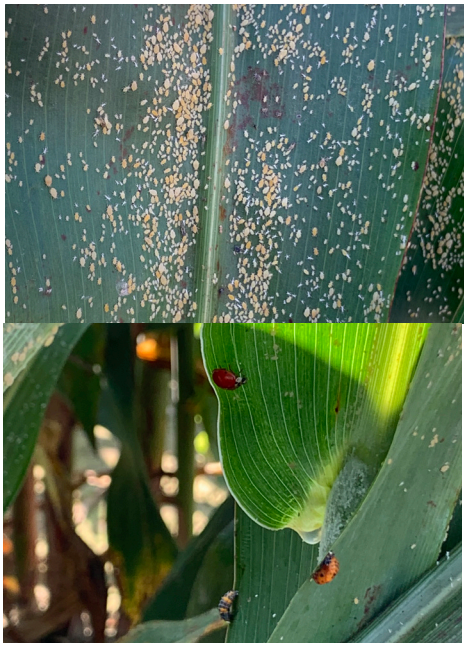
Sugarcane aphid is a major invasive pest of sorghum, first documented in South Carolina in 2014. While it is not known if it successfully overwinters in South Carolina, it arrives in our sorghum fields or Johnsongrass each year via migration from late-May to mid-June. Once the aphids establish, if left unchecked, the population can rapidly increase in a short amount of time. When aphids feed, they secrete a sticky substance, called honeydew which can often be seen on the top surface of leaves in infested fields. Honeydew leads to the development of black sooty mold which reduces the ability for the plant to photosynthesize. If aphid infestations are severe enough, reduced yields, or complete crop failure can occur.

Management of sugarcane aphid relies on integration of several control strategies including insecticides, biological control, and tolerant sorghum hybrids. Dr. Francis Reay-Jones, an entomologist at Clemson's Pee Dee Research and Education Center, is continuing research this year on effective implementation of several of these strategies, as well as examining whether planting date can be used as an additional cultural practice. "We are conducting trials this year to see if peak aphid populations can be avoided by adjusting planting dates, in addition to various insecticide treatments, on both grain and forage sorghum." Dr. Reay-Jones says.

Dr. Reay-Jones is testing several insecticides once plots reach thresholds, which is 50 aphids per leaf. These trials are being conducted in sorghum planted early and late. Planting date can have an effect on the availability and susceptibility of plant tissue when aphid populations arrive, potentially mitigating the impact of infestations.

Naturally occurring biological control also provides some control of aphid populations. Beneficial insects such as lady beetle adults and larvae, lacewing adults and larvae, big eyed bugs, hoverflies, and several species of parasitic wasps can all attack sugarcane aphids.

Many of these insects are also susceptible to insecticides used to control sugarcane aphids. While biological control likely does not provide complete control, it is important to consider the timing of insecticide applications and preserve beneficial populations whenever possible.



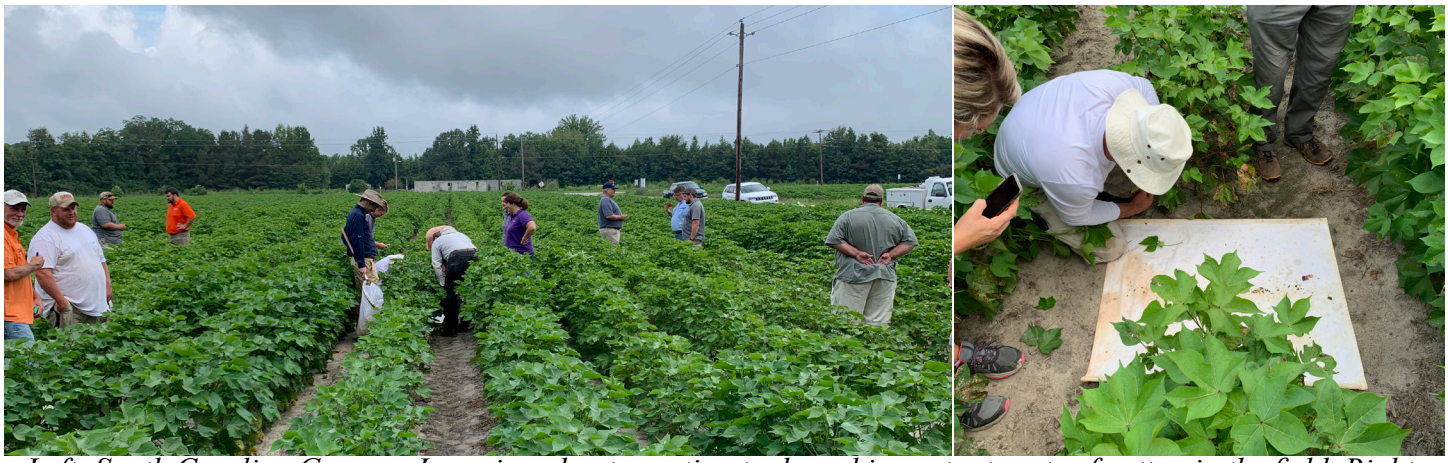
Top; Large colony of sugarcane aphids on underside of sorghum leaves. Bottom; Lady beetle adult and pupa, common aphid predators

The final consideration when managing sugarcane aphid is planting a sorghum hybrid with tolerance to aphid feeding. Under low pressure conditions, these hybrids can prevent yield loss, and under moderate to high pressure they can delay the need for insecticide applications.

While sugarcane aphid can be a major pest of sorghum, the use of integrated pest management can provide excellent control and prevent loss. Cultural (i.e. host plant resistance and potentially planting date), biological, and chemical control should all be considered in tandem to reduce the overall impact of sugarcane aphid year to year and protect yields.

Clemson Extension Agents Host Scouting Workshops for Field Crop Prducers Throughout the State

Contributing Authors: **Dr. Jeremy Greene, Hannah Mikkell, Jonathan Croft, and Joe Varn**



Left; South Carolina Growers Learning about scouting tools and important pests of cotton in the field. Right; Dr. Jeremy Greene examining a drop cloth sample

Clemson Extension agents Hannah Mikell, Jonathan Croft, and Joe Varn hosted three scouting schools for growers in July to teach growers about scouting for pests in cotton, soybean, and peanuts. Growers in attendance met in the field with Extension agents and faculty to actively learn about scouting tools and some of the most important pests throughout the season.

Dr. Jeremy Greene, a field-crop entomologist at Clemson's Edisto Research and Education Center, demonstrated various scouting techniques and discussed the importance of insect identification in an integrated management plan. There are several tools that can be used to scout for various insect pests of cotton and soybeans, most importantly beat cloth/drop cloths and sweep nets. Generally, a beat cloth can be used in both crops, where it can be placed between two rows and the surrounding plants can be shaken over top to dislodge insects onto the cloth for counting. A sweep net can be effective also in both crops but particularly in soybeans, where narrow row spacings will not allow the use of a beat cloth. Action thresholds (i.e. the infestation levels of a given insect that warrant chemical control) are often based on a given number of insects found in sweeps with a net or a number of insects found per row feet sampled with a beat cloth, making these critical tools for an effective integrated management plan.

Some of the most significant pests in mid-to-late season cotton are stink bugs. Stink bugs damage cotton by feeding on small bolls directly, causing the development of warts on the inner walls. These feeding events can lead to damaged bolls that fail to open due to destruction of the seed and lint , reducing the overall yield. To determine if a field should be treated for stink bugs, 25 bolls should be opened by hand in several places in the field and the inner walls examined for warts. Weeks 3-5 of bloom are the most critical for stink bug management in cotton, where 10% of bolls displaying signs of feeding would warrant an insecticide application. Stink bugs can be sampled with a beat cloth or a sweep net to identify the species complex. Knowing which species of stink bug species make up the majority of the infestation is important for selecting the best insecticide. Brown stink bugs are generally less susceptible to many pyrethroid insecticides, with the exception of bifenthrin.

Bollworms are also a significant pest of cotton, feeding directly on bolls throughout the season. Cotton is most commonly planted with Bt traits which provide some control for bollworm feeding. Cotton with two genes (i.e. Bollgard 2, WideStrike, and TwinLink) provides less effective control than more modern three-gene varieties (i.e. Bollgard 3, WideStrike 3, and TwinLink Plus). The threshold for additional chemical treatments is dependent on intensity of pressure from bollworm and... (cont. page 4)

the performance of Bt traits in the planted cotton variety.

In soybeans, there are three main classes of insect pests; stem feeders, leaf feeders/defoliators, and pod feeders. Stem feeders include threecornered alfalfa hopper, kudzu bug, dectes stem borer, and lesser cornstalk borer. These pests can damage the main stem of soybean plants reducing overall plant vigor and often resulting in lodging of the plants later in the season. There are a range of defoliating caterpillars in South Carolina, including soybean looper, velvetbean caterpillar, corn earworm/podworm, and green cloverworm. Damage from this complex of insects is estimated as a percentage of leaf tissue eaten, and action thresholds are based on defoliation before (30%) and after (15%) mid-bloom. The two main pod-feeding insects are corn earworm/podworm and stink bugs. Pod feeders feed directly on the seed, directly impacting yield.

An awareness of which pests are present throughout the season and when to monitor for different types of injury are critical for reducing losses as a result of insect feeding. For more information on action thresholds for various pests throughout the season, identification, and insecticide recommendations see the Clemson insect pest management guides. Dr. Greene also distributes a weekly newsletter with timely updates in cotton and soybean throughout the season.

Dollar Spot Management in Turfgrass

Contributing Author: **Dr. Joe Roberts**

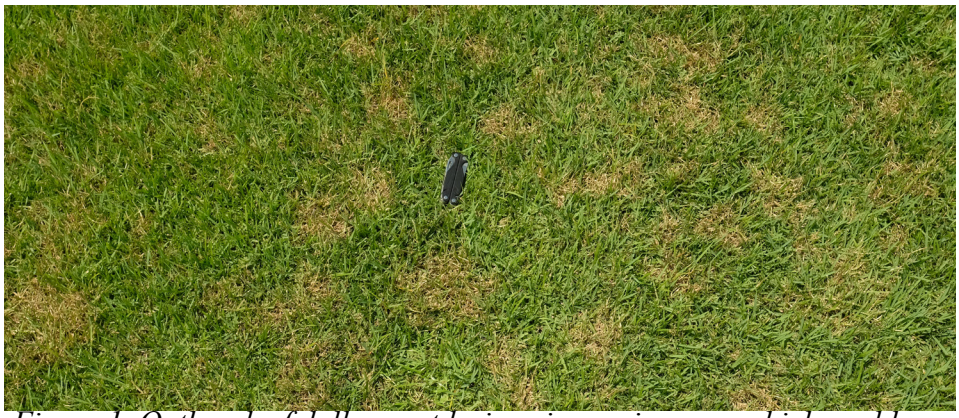


Figure 1. Outbreak of dollar spot lesions in zoysiagrass, which could coalesce under the right conditions and in the absence of management

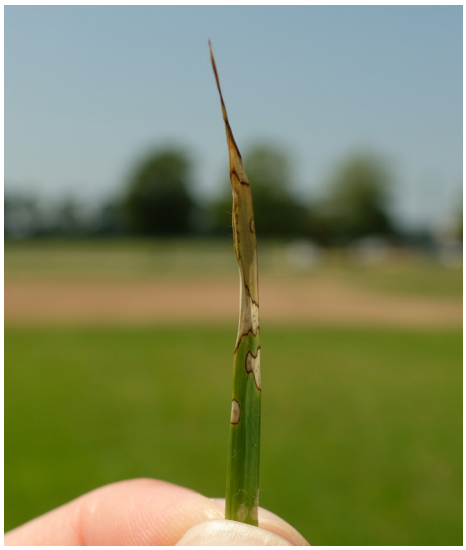


Figure 2. Symptoms of dollar spot on an individual leaf, note the girdling causing the tip to die first

Dr. Joe Roberts, a turfgrass pathologist and nematologist stationed at the Pee Dee Research and Education Center, works primarily on limiting turfgrass crop loss from disease through integrated pest management. Currently, Dr. Roberts says that he has recently observed dollar spot in the Pee Dee region.

Dollar spot, caused by several different species of Clarireedia fungi, is a common disease of turfgrasses. While the causal agent of dollar spot was previously known as Sclerotinia homoeocarpa, Clarireedia monteithiana was classified as the causal agent of dollar spot occurring on warm season turfgrasses in 2018. Dollar spot initially appears as small bleached or light tan spots around the size of a silver dollar coin, and under the right conditions can grow to around 6 inches in diameter (figure 3). Individual spots may also coalesce into larger patches of diseased turfgrass (figure 1). The infected leaves are typically girdled causing the upper part of the leaf to die slowly (figure 2), but this can be difficult to identify in closely cut turf. If the disease continues to develop it can cause the turf to die back to the soil.

Cool season grasses like creeping bentgrass and Kentucky bluegrass are common turfgrass species that are particularly susceptible to dollar spot, but it can develop in several different host species including warm season grasses like bermudagrass, zoysiagrass, and others. Selecting a... (cont. page 5)

resistant cultivar, particularly when using susceptible turfgrass variety can help to limit the impact of dollar spot. Consult with University recommendations in your area when selecting grass cultivars. Some information on turfgrass varieties and cultivars can be found in Clemson's Home and Garden Information Center publication.

Figure 3. Large dollar spot lesion in zoysiagrass with multitool for scale

The main risk factor for dollar spot development is extended periods of leaf wetness. Irrigation should be used with consideration for drainage and the ability for particular areas to properly dry. Irrigating early in the morning as opposed to in the evening can help prevent severe outbreaks of dollar spot. Symptoms are also more severe on areas with low nitrogen fertilization.

Several fungicides are effective against dollar spot disease, but be sure to read and follow label guidelines according to your specific site (i.e., residential, commercial, sports, or golf). More information on managing dollar spot and other important diseases of turfgrass can be found in this HGIC publication (https://hgic.clemson.edu/factsheet/leaf-diseases-of-lawns/).